

Appendix A-1

Air Quality Analysis Technical Errata



Memorandum

To:	Mark Aikawa and Eva Pong
From:	Cory Matsui, ICF Senior Air Quality Specialist Diana Roberts, ICF Project Manager
Date:	November 30, 2020
Re:	Air Quality Technical Errata

Dear Mr. Aikawa and Ms. Pong,

The below documentation serves as an update to the existing regulatory and environmental conditions at the project site regarding air quality as of 2020. As needed, effect conclusions are updated as well. This errata memorandum was prepared by ICF staff member Cory Matsui, senior air quality specialist. It includes the following sections:

- Project Description
- Setting
- Effects Analysis
- References

Project Description

The footprint for the project has not changed since the San Francisco-Oakland Bay Bridge Regional Bicycle/Pedestrian Connection Initial Study/Mitigated Negative Declaration (IS/MND) was drafted in 2014. However, the project proponent has introduced three phasing options to guide construction.

The Link may be implemented in more than one phase to respond to timing considerations and the availability of funds as well as the schedule for related projects. The sections that follow discuss the possible phasing options. All Class II bicycle lanes and bicycle boxes would be installed as part of the initial period of construction, regardless of phasing options.

Phasing Option 1

Phasing Option 1 would construct approximately 2,900 feet of Class I path structure, beginning approximately 600 feet east of Maritime Street and continuing to the Bay Bridge Trail. Starting from the east, the structure would begin approximately 600 feet east of Maritime Street with an

interim connection to the multi-use path (MUP), which was installed as part of the high-occupancy vehicle/bus extension project. Under Phasing Option 1, the West Oakland Link profile would be lowered to tie in to West Grand Avenue. The structure would continue west, parallel to West Grand Avenue. The elevated Link structure would span Maritime Street and the existing at-grade railroad crossings near Burma Road. The structure would then continue under the Interstate 80 ramps and tie in at the connection to the Bay Bridge Trail. Construction under the initial build portion of Phasing Option 1 would correspond to a portion of Segment 4 and all of Segment 5.

When additional funding for construction is available, the Link would be extended to Mandela Parkway. The interim connection to West Grand Avenue could either be demolished or retained as an emergency access point. The remaining easterly portion of Segment 4 would be constructed with a slightly revised vertical profile. Segments 1 through 3 as well as the ramps to Maritime Street and Oakland Maritime Support Services (OMSS) (the remainder of Segment 4) would also be constructed.

Phasing Option 2

Phasing Option 2 would be similar to Phasing Option 1. However, a 600-foot segment on the east side of Maritime Street would be designed and constructed so that the bridge deck could be raised during a future phase of the project, providing a smooth profile and minimizing elevation changes for the Link under the full build condition. Construction under the initial build portion of Phasing Option 2 would correspond to a portion of Segment 4 and all of Segment 5.

When additional funding for construction becomes available, the Link would be extended to Mandela Parkway. The above-mentioned 600 feet of the bridge deck could be raised to its final elevation by extending the bridge columns. Segments 1 through 3, the remaining easterly portion of Segment 4, and the ramps to Maritime Street and OMSS would also be constructed.

Phasing Option 3

Phasing Option 3 would construct Segment 4, except for the ramps to Maritime Street, OMSS, and Segment 5 of the Link project.

When additional funding for construction is available, Segments 1 through 3 and the ramps to Maritime Street and OMSS could be constructed.

Setting

Changes in the Setting

In general, the environmental setting of the project area is largely similar to the setting discussed in the 2015 air quality technical memorandum. With respect to ambient air quality in the project area, the most recent monitoring data from the California Air Resources Board (CARB) for the 2017–2019 period is available. That data, shown in Table 1, below, indicate that there has been an increase in the number of violations regarding ozone and particulate matter 2.5 micrometers in diameter and smaller (PM_{2.5}) relative to the 2011–2013 period. Although the 2015 Air Quality Analysis technical

memorandum showed that there were two violations of the PM_{2.5} standard in the 2011–2013 period, the current dataset shows that there were approximately 21 violations of the PM_{2.5} standard and, additionally, a violation of the state and federal 8-hour ozone standards and a violation of the state 1-hour ozone standard. There have not been any changes with respect to carbon monoxide or nitrogen dioxide violations.

Table 1. Ambient Air Quality Monitoring Data for the Oakland-West Station

Pollutant Standards	2017	2018	2019
Ozone (O₃)			
Maximum 1-hour concentration	0.087	0.063	0.101
Maximum 8-hour concentration	0.069	0.050	0.072
Maximum 1-hour concentration	0.048	0.047	0.049
Days state 1-hour standard exceeded (0.09 ppm)	0	0	1
Days state 8-hour standard exceeded (0.070 ppm)	0	0	1
Days national 8-hour standard exceeded (0.070 ppm)	0	0	1
Carbon Monoxide (CO)			
Maximum 1-hour concentration	6	3.6	2.4
Maximum 8-hour concentration	2.1	3.1	1.7
Days state 1-hour standard exceeded (20 ppm)	—	—	—
Days national 1-hour standard exceeded (35 ppm)	0	0	0
Days state 8-hour standard exceeded (9.0 ppm)	—	—	—
Days national 8-hour standard exceeded (9 ppm)	0	0	0
Particulate Matter (PM₁₀)			
No data available			
Particulate Matter (PM_{2.5})			
Maximum state 24-hour concentration	56.0	169.2	29.3
Maximum national 24-hour concentration	56.0	169.2	29.3
Annual average concentration	12.9	14.4	7.8
Days national 24-hour standard exceeded (expected) (35 µg/m ³)	7.1	14.6	0.0
Nitrogen Dioxide (NO₂)			
Maximum 1-hour concentration	52.3	75.6	50.0
Annual average concentration	13	12	11
Days state standard exceeded (0.18 ppm)	0	0	0
Days national standard exceeded (0.100 ppm)	0	0	0

Source: California Air Resources Board 2020a; U.S. Environmental Protection Agency 2020a.

Notes:

ppm = parts per million

µg/m³ = micrograms per cubic meter

— = insufficient data available to determine the value

With respect to the National Ambient Air Quality Standards (NAAQS), Alameda County was previously listed as a nonattainment area for particulate matter 2.5 micrometers in diameter and smaller (PM_{2.5}); however, the county is currently considered to be in attainment for PM_{2.5} under the NAAQS. The current attainment status of Alameda County for all pollutants is reported in Table 2.

Table 2. Federal and State Attainment Status of the Project Area (Alameda County)

Pollutant	NAAQS	CAAQS
Ozone (8-hour standard)	Marginal Nonattainment	Nonattainment
CO	Maintenance (P)	Attainment
PM ₁₀	Attainment	Nonattainment
PM _{2.5}	Attainment	Nonattainment

Sources: California Air Resources Board 2020; U.S. Environmental Protection Agency 2020.
(P) = designation applies to a portion of the county; NAAQS = National Ambient Air Quality Standards;
CAAQS = California Ambient Air Quality Standards

With respect to sensitive receptors, the discussion in the 2015 memorandum adequately describes the types of receptors found in the project vicinity. The sensitive receptors in the vicinity are still recreational facilities (Raimondi Park) and residences. In addition, the project site is still partially located in a largely commercial and industrial area.

Changes in Regulatory Setting

The regulatory setting applicable to the proposed project described in the 2015 memorandum is largely representative of the current regulatory environment. Overall, the fundamental regulations regarding criteria air pollutants have not changed substantially. However, there have been minor changes to the ambient air quality standards since the 2015 memorandum; namely, the NAAQS for ozone were changed from 0.075 part per million (ppm) to 0.070 ppm. The current NAAQS and California Ambient Air Quality Standards (CAAQS) are listed in Table 3.

Effects Analysis

Changes in Methods

A quantitative analysis of the project's impacts in order to evaluate specifically construction with the phasing options has not been conducted because the quantitative results in the 2015 memorandum represent a worst-case scenario. Consequently, there are no changes to the methodology of the air quality analysis.

Table 3. Federal and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards ^a	
			Primary	Secondary
Ozone	1 hour	0.09 ppm	None ^b	None ^b
	8 hours	0.070 ppm	0.070 ppm	0.070 ppm
CO	8 hours	9.0 ppm	9 ppm	None
	1 hour	20 ppm	35 ppm	None
PM10	24 hours	50 µg/m ³	150 µg/m ³	150 µg/m ³
	Annual mean	20 µg/m ³	None	None
PM2.5	24 hours	None	35 µg/m ³	35 µg/m ³
	Annual mean	12 µg/m ³	12.0 µg/m ³	15 µg/m ³
NO ₂	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1 hour	0.18 ppm	0.100 ppm	None
SO ₂ ^c	Annual mean	None	0.030 ppm	None
	24 hours	0.04 ppm	0.14 ppm	None
	3 hours	None	None	0.5 ppm
	1 hour	0.25 ppm	0.075 ppm	None
Lead	30-day average	1.5 µg/m ³	None	None
	Calendar quarter	None	1.5 µg/m ³	1.5 µg/m ³
	3-month average	None	0.15 µg/m ³	0.15 µg/m ³
Sulfates	24 hours	25 µg/m ³	None	None
Visibility-reducing Particles	8 hours	— ^d	None	None
Hydrogen Sulfide	1 hour	0.03 ppm	None	None
Vinyl Chloride	24 hours	0.01 ppm	None	None

Source: California Air Resources Board. 2016. *Ambient Air Quality Standards*. May 4. Available: <https://ww3.arb.ca.gov/research/aaqs/aaqs2.pdf>. Accessed: October 20, 2020.

ppm = parts per million; µg/m³ = micrograms per cubic meter

- a. National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.
- b. The federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for State Implementation Plans.
- c. The annual and 24-hour NAAQS for SO₂ apply only for 1 year after designation of the new 1-hour standard to those areas that were previously in nonattainment for the 24-hour and annual NAAQS.
- d. The CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer, which is visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.

Changes in Effects

As noted in the 2015 memorandum, the project is exempt from conformity requirements because it is a bicycle and pedestrian facility. The use of phasing options during construction does not change the project's exemption from conformity requirements; therefore, regional and project-level conformity analyses are not required.

For operational emissions of ozone precursors, carbon monoxide (CO), particulate matter 10 micrometers in diameter and smaller (PM10), and PM2.5, the phasing options would not change the number of path users who travel to and from the 100-space parking lot appreciably. The 2015 memorandum assumed that the project would become operational in 2019; the actual operational year will be at least several years later. Consequently, the operational emissions shown in Table 4 of the 2015 memorandum represent a worst-case scenario because vehicle emissions in 2019 would be higher on a per-mile basis than in subsequent years. The vehicle fleet generally becomes less polluting over time because of advancements in vehicle technology and the retirement of older, more polluting vehicles. Because the project would become operational at a time subsequent to 2019, the operational emissions are anticipated to be less than what is shown in Table 4 of the 2015 memorandum.

With respect to mobile-source air toxic (MSAT) impacts, the phasing options would not change the project's designation as one that has no meaningful MSAT impacts. The rationale for this designation, as noted in the 2015 memorandum, is that the project would involve construction of a bicycle/pedestrian path and therefore would have minimal air quality impacts. This rationale is still valid.

Construction of the proposed project with the phasing options described above would not result in worsened impacts with respect to construction-related emissions of ozone precursors, CO, and PM10 relative to emissions described in the 2015 memorandum. Overall, the phasing options would result in construction activities and emissions with a lower intensity compared with the originally planned construction activities because project construction between Frontage Road and Mandela Parkway would occur later than the rest of the project. Emissions from the project with the phasing options are therefore anticipated to be less than the quantified emissions shown in Table 5 of the 2015 memorandum. As shown in that table, the construction years assumed in the original analysis were 2017 through 2019. Because project construction would start and end approximately four years later, the construction equipment would be cleaner because older, more polluting equipment would be replaced by newer, cleaner equipment. Therefore, the portion of the project from Frontage Road to Mandela Parkway would be constructed at a later date, whenever funding is available, and with newer, cleaner equipment. In summary, construction with the phasing options would result in fewer emissions compared with those shown in the 2015 memorandum because construction would occur later and with cleaner equipment.

Impacts related to naturally occurring asbestos (NOA) would remain unchanged from the impacts described in the 2015 memorandum. The project would still not be located in an area that is known to contain NOA.

A new multi-family residential building will be constructed at 2011–2195 Wood Street that was not previously considered in the 2015 memorandum. To reduce health effects from existing sources of pollution in the area (e.g., Interstate 80, Port of Oakland, trains), the Wood Street project was required to comply with the City of Oakland's (City's) conditions of approval. These conditions of approval required the project sponsor to choose one of two options. The first was to prepare a Health Risk Assessment (HRA). If health risks are below acceptable levels, then no further measures are needed. If risks are above acceptable levels, then the project sponsor would need to implement approved HRA recommendations. Alternatively, the project sponsor can choose to implement all of the measures listed in the City's conditions of approval.

Although the planned building is not currently built or occupied, it is possible that it will be constructed and occupied by the time construction of the project commences. As such, construction of the project could adversely affect future occupants (i.e., sensitive receptors) at the 2011–2195 Wood Street building through emissions of toxic air contaminants (TAC). The primary TAC of concern associated with project construction is diesel particulate matter (DPM), which is a carcinogen emitted by diesel internal combustion engines. Construction activities would generate DPM and could expose adjacent receptors at the Wood Street building to significant health risks. DPM concentrations would be dramatically reduced as the distance between construction activities and sensitive receptors increases, however. Given the linear nature of the project, it is not anticipated that construction activity would occur next to the Wood Street building for a prolonged period of time. Nevertheless, the proximity of project construction activity to sensitive receptors warrants an additional mitigation measure that was not proposed in the 2015 memorandum. With implementation of this additional mitigation measure, AQ-4, future construction activity in proximity to the Wood Street building or other reasonably foreseeable projects with sensitive receptors would require an evaluation for its health risk effect on those receptors. Health risks from project construction that are above the applicable Bay Area Air Quality Management District (BAAQMD) thresholds would necessitate implementation of additional measures to reduce impacts on sensitive receptors to a less-than-significant level.

Mitigation Measure AQ-4: Prepare a Health Risk Assessment prior to Construction near the Wood Street Residences and Implement Risk Reduction Measures (as necessary)

The project sponsor shall prepare a site-specific construction HRA for all construction activity within 1,000 feet of the 2011–2195 Wood Street project once the construction schedule for such activity is known. This HRA shall be prepared well in advance of construction so that if provision of filtration, as discussed below, can be installed prior to construction in the vicinity.

For the 2011–2195 Wood Street project, the project sponsor shall determine the specific measures or features that were approved for the Wood Street project, pursuant to the City's conditions of approval to reduce exposure to existing sources of TACs. Indoor air filtration at the Wood Street project is expected to be equal to MERV-13 or greater efficiency standards, based on the requirements of the West Oakland Community Action Plan. The project sponsor shall also confirm other measures at this building that will be implemented, such as strategic site layout planning, and indoor air quality monitoring units.

If the project's construction HRA demonstrates that health risk exposures or PM_{2.5} concentrations at adjacent receptors would be less than BAAQMD thresholds, then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks or PM_{2.5} concentrations would exceed BAAQMD thresholds, inclusive of the Wood Street project's conditions of approval, then additional mitigation shall be provided by the applicant to reduce risks so that the project's incremental risk is below BAAQMD project thresholds and the project does not contribute to an exceedance of the BAAQMD cumulative threshold. The additional mitigation may include source reductions, such as mandating Tier 4 engines in construction equipment, and/or receptor reductions, such as higher air filtration efficiency standards than those approved for the Wood Street project (e.g., MERV 14 or higher). The use of filtration with

higher MERV values, such as MERV-14, would result in additional filtering of particles beyond MERV-13, with up to 84% efficiency for MERV-14 for particles less than 1 micron in size.¹

As summarized above, with the additional mitigation proposed above, there would be no notable worsened impacts under the phasing options and at the planned Wood Street building, compared to that identified in the 2015 technical memorandum. The original mitigation measures outlined in the 2015 memorandum would still be applicable as best management practices to reduce dust and exhaust emissions.

¹ Based on estimates from the U.S. Environmental Protection Agency (<https://www.epa.gov/indoor-air-quality-iaq/what-merv-rating-1>).

References

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